A pocketful of type: the impact of mobile phones on global type design

Article

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A pocketful of type: Twenty-first century textual communication for diverse scripts

More than half a century ago a new technology in type-making – that of filmsetting – was heralded for its "ability to store in one shallow box, or slip into one airmail packet, the equivalent of tons of standing metal type" (Monotype Recorder, 1961). One visible result of the development and exponential growth of the subsequent technology of digital type, over fifty years later, is the now customary sight of a pocket bulging with a mobile phone that may hold the equivalent number of types that a typefoundry might have laboured to produce in as many years with concomitant storage problems.

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Digital technological developments have, in a number of ways, particularly benefited the typographic representation of writing systems that do not make use of the Latin script – indeed those used by most of the world's population. In terms of improved accessibility and ease of composition an instance is afforded by the composition of bookwork in the Devanagari script: It was reported in 1955 that that up to 7 cases of [metal] book type (of one size only) are needed for bookwork for an Indian script. '… the cost of maintaining a composing room for bookwork can be immense.' (Norman Ellis, 'Indian Typography' in Kesavan, *The Carey Exhibition*, 11); whereas the digital OpenType Devanagari fonts commissioned and used by Harvard University Press to set volumes of classical texts with accompanying English translations (figure 1) are installable in a few minutes. In 2019 the Murty Sanskrit font contains 1025 glyphs (digital characters) plus Latin, totalling 1492 glyphs: Sanskrit, is perhaps one of the most challenging Indian languages to represent typographically due to the range and complexity of some of the consonantal combinations that may occupy great depth (figure 2).

In terms of design, digital technology can reproduce letterforms that were previously difficult to replicate cleanly in metal type, providing appropriate typographic abstractions of manuscript forms. Current technology also caters for neologisms and loan words that relate to contemporary needs with the ability to supply the alternative preferred forms which, for instance in the Devanagari script, distinguish Hindi, Sanskrit, and Marathi textual composition. Contextual alternates, that are essential to some writing systems while only optional to others, were resolved by means of software at first for Arabic-script composition during the short-lived era of filmsetting technology; provision for these is now a standard feature in digital font development (figure 3)

Furthermore, the accurate placement of vowel signs and other marks by means of OpenType layout software simply relies on the meticulousness of the font's creator, as the positioning is nowadays embedded in the font and not reliant on proprietary software such as that conceived by Linotype Limited for the first Indian digital fonts designed for newspaper composition in the early 1980s.

Again, the previously cumbersome issue of combining scripts in multiscript documents even of different writing directions within the same line has been resolved. This is vital in continents such as Asia, where 3 scripts or more may need to appear simultaneously in one single document or on a road sign; indeed, an Indian rupee bank note bears 17 languages in

11 scripts. Designers and digital typefoundries recently have taken pains to harmonize scripts that need to work together – although in instances such as wayfinding it is of course useful, if not necessary, to supply differentiation for ease of speedy navigation. Multiscript setting may require compromises in the typography, e.g. increased leading, but no longer in terms of script representation. (fig. 4 a & b)

With such improvements and clear commitments by invested software companies to facilitate the accurate rendering of diverse writing systems, typographic excellence in scripts beyond Latin is achievable. It is therefore perhaps natural to assume that this would be a golden era for textual communication in diverse scripts for global linguistic communities. Regrettably, the promise of delivering high readability and therefore effective vernacular textual communication worldwide by means of digital type technologies has yet to be realised. This is not merely on account of a paucity of high-quality fonts – some continue to bear a legacy of limitations imposed by previous technologies when type was still a three-dimensional object – but also because layout software and input methods remain problematic in a number of areas, particularly in non-print situations, i.e. in computer facilitated communication.

Unfortunately, there is no guarantee that in transmitting a text in, say, the Meetei Mayek script, the recipient will be viewing the same results as the sender; the resulting textual output will depend on the font, which needs to be Unicode compatible (or at least identical to the sender's) and may be affected by the operating platform as well as the composing software (figure 5a). This is not limited to scripts that are perceived as minority scripts but even those with over 300 million users (figure 5b). Therefore, there may be a continued reliance on sending images of text (in the form of screenshots or pdfs).

This issue, to some extent, also accounts for the relatively late development of South Asian interactive e-newspapers, which have yet to avail themselves of the benefit of using fonts specifically designed for online reading. Most either use the same fonts as the print versions (which are flourishing in South Asia) or default fonts provided by the operating system. Indeed, a number of newspapers continue to simply put up images of their print versions due to the lack of available resources to set up and maintain a separate electronic version with the necessary investment in software this might involve (figures 6a and 6b). Similarly, few eBooks in Indian languages are interactive but rather are generated from image-based pdfs (OCR also remains an unresolved issue).

Despite the disconcerting difficulties in computer-aided communication for many scripts, traffic on social media in a multitude of languages grows unabated even when such interaction is profoundly affected by unresolved typographic issues. Perhaps the most surprising situation that exists in textual communication in the 21st century is the heavy use of transcription. Social media users differ from those engaged in typography who might use a physical or virtual keyboard specific to their script; the majority of users in India, particularly those of a younger generation, are known to find localised input methods cumbersome, especially on smaller devices such as smart phones or tablets, and prefer to enter the text in Latin script using the 'qwerty' keyboard layout. They might then use software such as Google Translate to transcribe into Devanagari, Bengali, Gujarati, and other scripts. However, there are issues of inaccuracy: it is difficult, for instance, to distinguish between the three kinds of 'sa' or the four kinds of 'da', etc that are present in the Indian philological system.

In some cases, for instance on laptops, some virtual keyboards allow keying in Latin script and then provide a drop-down menu in the desired script to select the appropriate

word (whose correct form is not always evident to the user more accustomed to reading the dominant Latin script) (figure). Some 'apps' have an inbuilt transcribing system (e.g. Snapchat) but again this can result in orthographic inaccuracies; others like Whatsapp have difficulty in rendering certain sequences with vowels.

Many users prefer to leave the text in Latin for want of a font in the required script or a clearly readable typeface – speed of texting and instant readability are important aspects of text messaging by phone. (figure) Unfortunately, the default typefaces used in operating systems, apps and phones are not necessarily the most appropriate for sustained reading in a given language, perhaps chosen by engineers and programmers – a number of whom are energetically committed to resolving input methods – rather than by typographers or experienced type-designers. Occasionally the user has the option to change the default font, but s/he may be unaware of the possibility or of how to do so. The long-term consequences of localised system fonts, which may possess odd quirks (at times to counter anticipated technical issues) should not be underestimated as in many parts of the world these become the common reading experience for a generation, conditioning their expectations of the textual rendition of their language.

With such issues affecting South Asian scripts, it could be assumed that Japanese textual communication might also suffer, given that it makes use of a combined writing system using syllabaries and logographic *kanji*. Yet it has resolved such difficulties in various efficient ways, enabling users to enter text swiftly. The standard keyboard has both Latin and Japanese scripts; the latter in *kana* arranged according to a traditional Japanese keyboard layout, which is by preferred by dedicated Japanese writers and those less familiar with the Latin script, e.g. children under ten and the older generation. For others, the Latin script tends to be used as an input method for keyboarding text, by means of either a physical or a virtual keyboard. Syllables are typed in Latin and are automatically converted to *hiragana* and the user calls for a drop-down menu to convert to either *katakana* or *kanji* where appropriate.

The recent macOS, however, does context-sensitive automatic conversion (like predictive text in English) into *hiragana*, *katakana* or *kanji*, and the user can select alternate forms from a drop-down menu via the space or tab key; a similar method is available on small devices. In the case of social media, however, smart phones (figure) provide another very efficient system using the Japanese syllabary, which can either be swiped or tapped, known as the 'flick input' method (see figure).

Clearly the development of a variety of effective text input methods for Japanese accompanied by a strong array of high-quality typefaces results from the investment of resources unmatched in some other parts of Asia. However, the experience of Persian textual communication is heartening. Persian often suffers from a disparity in the attention given to its typographic rendering in comparison to Arabic. However, the availability of the Persian keyboard on iOS devices, previously only available on Android devices, introduced in September 2017 has transformed input entry for Persian texts for many users. In consequence, Latin transcription of the Persian language on social media has almost disappeared from sight. Inevitably, different applications function differently with the input of Persian numerals remaining a problem in some, as these are inappropriately shifted to the left after keying. Moreover, the recently introduced Arabic-script default font for iOS devices (and therefore for Twitter and Facebook), which is notable for its cramped descenders, has a system of mark positioning that is problematic for reading Persian (figure). The Android version is superior in this regard, as is the slightly more conventional

font used on Instagram. However, in comparison to the highly regarded typefaces favoured for Persian text in print media and on the BBC Persia website, further progress is desired by social media users (figure).

Clearly, experiences differ according to language, script and location, and, inevitably, according to the resources available and priorities given to the different languages and the diverse scripts that populate Asia. It is undeniably frustrating for literally many millions of users to continue to encounter issues with textual communication (only some of which are outlined above) on a daily basis that could be resolved with today's technologies and the available expertise. The potential for improvements can be readily realised using a two-pronged approach that addresses both input and layout issues and also type-design quality for the typographic rendition of vernacular scripts. Furthermore, it is no overstatement to suggest that such improvements are vital to fostering and sustaining high levels of literacy in many diverse scripts, particularly those of South Asia.

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It is as well to consider that the technologies of the 21st century may facilitate the encapsulation of unprecedented tons of type in a device small enough to fit in a pocket, but smart devices are effective means of communication only when there is connectivity. And connectivity can be equally elusive in rural areas of England as in rural areas of India.

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